

the public-land surveys on State boundaries or other limiting lines. Half ranges and half townships are fractional townships by definition.

FRAGMENTARY SURVEYS – Surveys required to identify parts of townships and sections not completed in original surveys. This may include partially surveyed sections, omitted public land islands and other lands of substantial value and extent that for various reasons were not included in the original surveys. Surveys of this type frequently require consideration of the question of title prior to the extension of the former surveys.

FREE AND CLEAR – The title to property is said to be “*free and clear*” when it is not encumbered by any lien; but it is said that agreement to convey land “*free and clear*” is satisfied by a conveyance passing a title.

FRONTING – Usually signifies abutting, adjoining, or bordering on, depending on the context. Land abutting on a highway, river, seashore or the like. The land extending along a road, street, river, canal or ocean. The term, as used in statutes relating to assessments for improvements, indicates that there is no intervening land. See ABUT and ADJOINING.

G

GA – Georgia.

GD (Land Status Records) – Gold.

GEO (Land Status Records) – Geothermal.

GEOL STR (Land Status Records) – Geologic structure.

GLO (Land Status Records) – General Land Office.

GR DIST (Land Status Records) – Grazing District.

GR LIC (Land Status Records) – Grazing license.

GR LSE (Land Status Records) – Grazing lease.

GR PER (Land Status Records) – Grazing permit.

GSR MER (Land Status Records) – Gila and Salt River Meridian.

GADSDEN PURCHASE – A purchase from Mexico in 1853 to settle a question as to the limits of the Mexican Cession of 1848. James Gadsden, a South Carolina railroad promoter negotiated for the acquisition of 19 million acres of additional land and the settlement of the claims. The territory acquired lies in the States of Arizona and New Mexico. See GADSDEN TREATY.

GADSDEN TREATY – The December 30, 1853, treaty with Mexico, under the terms of which the United States acquired territory now in the States of Arizona and New Mexico. the territory thus acquired is commonly called the GADSDEN PURCHASE.

GENERAL LAND OFFICE – The agency which was formerly responsible for the execution of the public-land laws relating to cadastral surveys, land disposals, and to various other activities with respect to the administration and management of the public lands. It was established as a unit of the Treasury Department in 1812, and so remained until 1949, when it became a part of the newly created Department of the Interior. It was abolished in 1946 when its functions were combined with those of the Grazing Service to become the Bureau of Land Management.

GEODETIC AZIMUTH – The horizontal angle at station A measured from a north south plane (perpendicular to the reference ellipsoid) clockwise to an ellipsoidal normal section passing through station B. Geodetic azimuth is determined by applying a correction to astronomic azimuth or by computations on the reference ellipsoid. The azimuth from A toward B is the forward azimuth while the azimuth from B toward A is the back azimuth of station B. See **GEODETIC***.

GEODETIC CONTROL – A system of monumented stations having known, precise positions established by geodetic methods.

GEODETIC COORDINATES – Quantities which define a horizontal position on an ellipsoid of reference with respect to a geodetic datum. See **GEOGRAPHIC COORDINATES**.

GEODETIC DATUM – A reference for geodetic survey measurements consisting of fixed latitude, longitude and azimuth values associated with a defined station as well as two constants for an ellipsoid of reference. See **NORTH AMERICAN DATUM OF 1927**.

GEODETIC POSITION – A position of a point on the surface of the earth expressed in terms of geodetic latitude and geodetic longitude. A geodetic position implies an adopted geodetic datum. In a complete record of a geodetic position, the datum must be stated. See **GEOGRAPHIC POSITION**.

GEODETIC SURVEY – A precise survey of considerable extent which takes into account the shape of the earth.

GEOGRAPHER OF THE UNITED STATES – The only man to hold this title was Thomas Hutchins. He was appointed to the position under the terms of the Ordinance of May 20, 1785. The office was created for the supervision of the cadastral survey of the Territory Northwest of the Ohio River according to the rectangular system

adopted by the Continental Congress under the ordinance. The east-west line at the north of "*The Seven Ranges*" is named "*The Geographer's Line*" in his honor. His successor, Rufus Putnam, was given the title "*Surveyor General of the Northwest Territory*" under the terms of the Act of May 18, 1796. See ORDINANCE OF MAY 20, 1785, THE SEVEN RANGES, ACT OF MAY 18, 1796, THE GEOGRAPHER'S LINE, SURVEYOR GENERAL, UNITED STATES SUPERVISOR OF SURVEYS and CHIEF, DIVISION OF CADASTRAL SURVEY.

GEOGRAPHER'S LINE, THE – The first line surveyed under the rectangular system. This line, which extends the width of the Seven Ranges (42 miles), is named for Thomas Hutchins, the Geographer of the United States. Under the Ordinance of May 20, 1785, the geographer was to "*personally attend to the running of*" a line westward from the "*Point of Beginning*."

GEOGRAPHIC COORDINATES (U.S.C. & G.S. Sp. PUB. 242) – An inclusive term, used to designate both geodetic coordinates and astronomic coordinates.

GEOGRAPHIC MIDDLE OF A RIVER – See MEDIUM FILUM ACQUAE.

GEOGRAPHIC POSITION – The coordinates of a point on the surface of the earth expressed in terms of latitude and longitude, either geodetic or astronomic.

In determining the geographic positions of monuments of the public land surveys, reference is made to USC & GS, NGS, USGS, or other acceptably determined stations.

GEOID – The figure of the earth considered as a mean sea-level surface extended continuously through the continents. See SPHEROID and GEOID*.

GEOLOGICAL SURVEYS. (GLO) – The first Geological Surveys of the public lands were initiated in 1844 by the General Land Office, in Michigan. Similar surveys were made in Wisconsin and Iowa during 1847; in Oregon and Washington during 1853; in Nebraska, Colorado and Wyoming during 1857. All such surveys were performed under private contracts. The Geological Survey was not established as a bureau of the Department of the Interior until 1879.

GILA AND SALT RIVER MERIDIAN – The principal meridian governing surveys in nearly all of Arizona; it was adopted in 1865.

GORE – A hiatus. See HIATUS and GORE*.

GOVERNING BOUNDARIES – Usually the south and east boundaries of a township, but may be termed the satisfactorily surveyed lines on which subdivisions are to be based. In rare and extreme cases, therefore, an irregular township may be without a single governing boundary.

GOVERNING SECTION LINE – A township subdivision line ran as the controlling boundary to rectify a defective township exterior. The line is surveyed on a bearing calculated to intersect the controlling corner on the opposite boundary. The last mile is run random and true. Completion of the subdivision of a township is based upon this boundary. See GUIDE MERIDIAN, SECTIONAL GUIDE MERIDIAN, STANDARD PARALLEL and SECTIONAL CORRECTION LINE.

GOVERNMENT CONTEST – See CONTEST.

GOVERNMENT LOT – See LOT.

GRADIENT – Rate of rise or fall, as "5% gradient," meaning a 5-foot vertical rise in a 100-foot horizontal distance (also recorded as 0.05). See GRADIENT BOUNDARY.

GRADIENT BOUNDARY – A boundary determined by the position of flowing water along a bank. First announced in Oklahoma vs. Texas by the U.S. Supreme Court (265 US 493), as follows: "*The boundary line is a gradient of flowing water in the river. It is located midway between the lower level of the flowing water that just reaches the cut-bank and the higher level of it that just does not overtop the cut-bank.. The physical top of the cut-bank, being very uneven in profile, cannot be a datum for locating the boundary line but a gradient along the bank must be used for that purpose. The highest point on the gradient must not be higher than the lowest acceptable point on the bank in that vicinity.*"

GRADUAL AND IMPERCEPTIBLE – Describes changes in riparian lands that bring them within the scope of the doctrine of accretion and erosion. The test of what is gradual and imperceptible has been held to be that "*though the witnesses may see, from time to time, that progress has been made, they could not perceive it while the progress was going on.*" See RIPARIAN LANDS, ACCRETION, RELICTION and EROSION.

GRANT – Lands, title to which has been confirmed or conferred to the United States for a particular reason or purpose. See GRANT IN PLACE, QUANTITY GRANT and PRIVATE LAND GRANT.

GRANT BOUNDARY ADJUSTMENT – A mathematical distribution of the closing error which consists of a uniform rotation and scale change of the record courses to conform to the retracement value between the controlling corners. See BROKEN BOUNDARY ADJUSTMENT, ADJUSTMENT* and CLOSING ERROR.

GRANTEE – A person, firm or corporation to whom land, easements or other habiliments thereof are conveyed or granted.

GRANT IN PLACE – A grant in connection with which the Congress specifically states, or implies, the legal description of the public lands which are granted. See QUANTITY GRANT, PLACE LANDS and INDEMNITY LANDS.

GRANT IN PRAESENTI – See IN PRAESENTI.

GRANTOR – a person, firm or corporation granting or conveying land, easements or other habiliments thereof.

GRANT, QUANTITY – See QUANTITY GRANT.

GRAZING SERVICE – The agency formerly responsible for the administration of grazing on public lands which had been designated as grazing district lands. Organized in the Department of the Interior after the passage, in 1934, of the Taylor Grazing Act, it was abolished in 1946 when its functions were consolidated with those of the General Land Office and transferred to the newly created Bureau of Land Management.

GREAT CIRCLE*.

GREENWICH MERIDIAN – The Prime Meridian. The meridian which passes through the original site of the Royal Observatory at Greenwich, England was adopted in 1884 by a conference of nations as the initial or zero of longitudes. From it other longitudes are reckoned east and west. See WASHINGTON MERIDIAN.

GRID AZIMUTH – The angle in the plane of projection between a straight line and the central meridian (y-axis) of a plane-rectangular coordinate system. Although essentially a map quantity, a grid azimuth may, by mathematical processes, be transformed into a geodetic azimuth.

GRID BEARING – The smaller angle in the plane of projection between a line and a north-south grid line. Grid bearings are determined only by mathematical computations or by applying corrections to geodetic azimuths. See BEARING, BACK BEARING, GEODETIC AZIMUTH and GRID AZIMUTH.

GRID LENGTH – The distance between two points as obtained by inverse computation from the plane-rectangular coordinates of the points. In the state coordinate systems, a grid length differs from a geodetic length by the amount of a correction based on the scale factor for the given line.

GROIN – A shore protective structure, narrow in width, usually built perpendicular to the shore for purposes of trapping littoral drift, or to protect the shore from erosion. Sometimes incorrectly called a dike. See DIKE.

GROOVES – Elongated depressions scored into the face of a stone monument where the faces of the stone are turned to the cardinal. See NOTCHES.

GROUP NUMBER – A filing and record-keeping system whereby a particular cadastral survey project is identified, i.e., Group 123, Wyoming. Since the beginning of the Direct System, all cadastral survey projects authorized under one specific set of instructions have been referred to by their “*Group number*.”

GUARANTEE OF TITLE – A certification which insures that the title exists in fact as described. Often issued by title-guarantee companies or by the state, as in the case of a Land Court certificate. See LAND COURT.

GUIDE LINE – An obsolete term for random line.

GUIDE MERIDIAN – An auxiliary governing line projected north along an astronomical meridian, from points established on the base line or a standard parallel, usually at intervals of 24 miles east or west of the principal meridian, on which township, section, and quarter-section corners are established. See AUXILIARY GUIDE MERIDIAN.

H

HB – Handbook. If in a citation, it means “*House Bill*.”

HDQ S (Land Status Records) – Headquarters Site.

HDS (Land Status Records) – Homestead declaratory statement.

HE (Land Status Records) – Homestead entry.

HES (Land Status Records) – Homestead entry survey.

HI – Hawaii.

HI (Land Status Records) – Historical Index. See HI*.

HUM MER (Land Status Records) – Humboldt Meridian.

HUNTS MER (Land Status Records) – Huntsville Meridian.

HWY (Land Status Records) – Highway.

HACK – A horizontal notch cut well into a tree at about breast height. In a cadastral survey, two hacks are cut to distinguish them from other, accidental marks. A vertical section of the finished hack marks resembles a double-V extending across a tree from two to six inches, depending on the diameter of the tree.

The “*blaze*” and “*hack*” marks are equally permanent, but so different in character that one mark should never be mistaken for the other.